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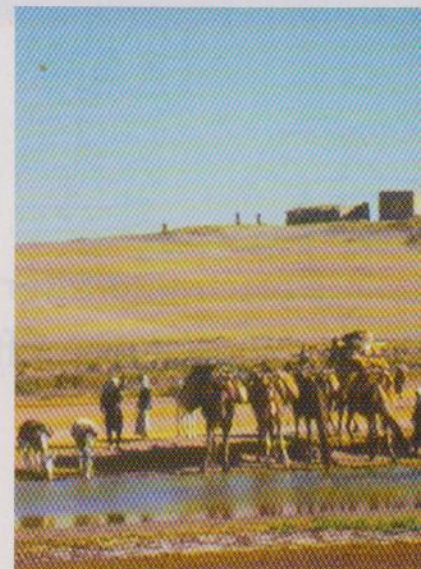
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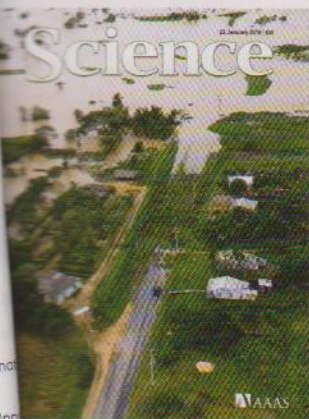
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## COVER

Hurricane Ike caused extensive damage throughout the Caribbean and Gulf of Mexico regions in September 2008, as shown here at Pinar del Rio in western Cuba. A state-of-the-art computer model projects that global warming should cause an increase in the frequency of the most intense western Atlantic hurricanes, like Ike, during the 21st century. See page 454.

Photo: Claudia Daut/Reuters/Landov

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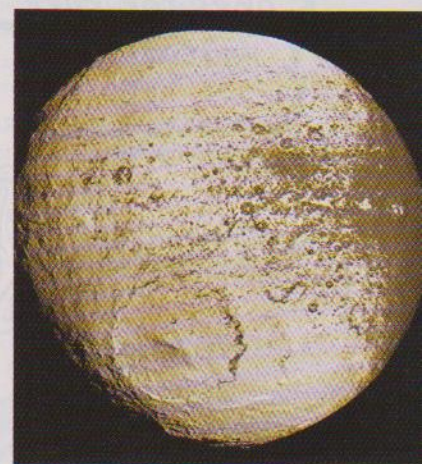
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Thermal migration of water ice explains the observed color asymmetry of Saturn's unusual moon, Iapetus.
- 439** Rules for Biologically Inspired Adaptive Network Design  
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- 474** Impact of Spikelets on Hippocampal CA1 Pyramidal Cell Activity During Spatial Exploration  
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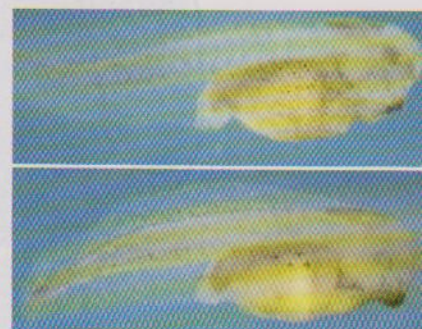
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## SCIENCEONLINE

## SCIENCEEXPRESS

[www.sciencexpress.org](http://www.sciencexpress.org)

**Repulsion of Superinfecting Virions:  
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*V. Doceul et al.*

Early in infection, vaccinia virus exploits the actin cytoskeleton to promote rapid cell-to-cell spread.  
10.1126/science.1183173  
>> Science Podcast

**The *Lmo2* Oncogene Initiates Leukemia  
in Mice by Inducing Thymocyte Self-Renewal**  
*M. P. McCormack et al.*

Expression of an oncogene confers self-renewal activity to committed T cells in the thymus long before disease onset.  
10.1126/science.1182378

**Climate-Modulated Channel Incision and  
Rupture History of the San Andreas Fault  
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*L. Grant Ludwig et al.*  
10.1126/science.1182837

**Slip in the 1857 and Earlier Large Earthquakes  
Along the Carrizo Plain, San Andreas Fault**  
*O. Zielke et al.*

The historical behavior of the San Andreas fault may have been dominated by smaller, more frequent slip events.  
10.1126/science.1182781

## SCIENCENOW

[www.sciencenow.org](http://www.sciencenow.org)

Highlights From Our Daily News Coverage

**Fish May Not Have Evolved Gills to Breathe**  
New study suggests a surprising reason for adaptation.

**Radiocarbon Daters Tune Up Their Time Machine**  
Researchers can now peer back 50,000 years with accuracy.

**Hang Christiaan Huygens! Here's a Better  
Suspension Bridge**  
They may be pretty, but simple swooping bridge cables are not the best design.

## SCIENCESIGNALING

[www.sciencesignaling.org](http://www.sciencesignaling.org)

The Signal Transduction Knowledge Environment

**EDITORIAL GUIDE: Focus Issue—External and  
Internal Regulators of Immune Responses**  
*E. Foley and N. R. Gough*

Antibody defense mechanisms are modulated by host-derived and pathogen-derived factors.

**RESEARCH ARTICLE: Distinct Signal Codes  
Generate Dendritic Cell Functional Plasticity**  
*K. Arima et al.*

The cytokine TSLP triggers distinct signals in dendritic cells that program a T helper 2 ( $T_H2$ )-type response.

**RESEARCH ARTICLE: Attenuation of Rabies  
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*C. Préhaud et al.*

Survival of rabies virus-infected neurons depends on a single amino acid in the PDZ-binding site of a viral protein.

**PERSPECTIVE: TAK-1 IKK Activation—  
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**REVIEW: What Is the Function of the Dendritic  
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*J. L. Rodríguez-Fernández et al.*

The immunological synapse organizes signaling responses in dendritic cells, as well as in T cells.

**CONNECTIONS MAP OVERVIEW: Interleukin-1  
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*A. Weber et al.*

IL-1 $\alpha$  and IL-1 $\beta$  orchestrate the proinflammatory response by multiple tightly controlled mechanisms.

**CONNECTIONS MAP OVERVIEW: Interleukin-1 $\beta$   
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*A. Weber et al.*

The NALP3 inflammasome pathway controls processing and release of interleukin-1 $\beta$ .

## SCIENCECAREERS

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**SPECIAL QUANTITATIVE BIOMEDICINE ISSUE  
Quantitative Biomedical Careers**

*S. Gaidos*

Physicists and mathematicians are finding new ways to apply quantitative skills to biomedical sciences.

**Informatics Careers Take Shape in  
Translational and Clinical Research**  
*B. Vastag*

Electronic patient data and research repositories mean new opportunities in medical informatics.

**Statistics Serving Biomedicine**  
*E. Pain*

Spanish statistician David Rossell supports other biomedical scientists while pursuing his own research.

## SCIENTRANSLATIONAL MEDICINE

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**PERSPECTIVE: Optimizing the Delivery  
of Cancer Drugs that Block Angiogenesis**  
*Y. Cao and R. Langer*

Optimizing antiangiogenic therapy requires the development of new drug delivery systems.

**COMMENTARY: Meeting the Governance Challenges  
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*S. M. Fullerton et al.*

Requisites for biorepository governance need to keep pace with developments in translational science.

**RESEARCH ARTICLE: Vaccines with MF59 Adjuvant  
Expand the Antibody Repertoire to Target Protective  
Sites of Pandemic H5N1 Influenza Virus**  
*S. Khurana et al.*

An oil-based adjuvant improves the efficacy of an H1N1 vaccine.

**RESEARCH ARTICLE: Identification of a Class of  
HCV Inhibitors Directed Against the Nonstructural  
Protein NS4B**  
*N.-J. Cho et al.*

A newly discovered activity in hepatitis C virus gives rise to a distinct class of antiviral compounds.

## SCIENCEPODCAST

[www.sciencemag.org/multimedia/podcast](http://www.sciencemag.org/multimedia/podcast)  
Free Weekly Show

Download the 22 January Science Podcast to hear about the impact of global warming on Atlantic hurricanes, a mechanism for rapid virus spread, the ancient Natufians, and more.

## SCIENCEINSIDER

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